WE CLAIM:

1.   A method of image segmentation comprising the
steps of:

5   partitioning at least part of an input image
into a plurality of partitioned units;

determining   segments   for   each   of   said
plurality of partitioned units based on at least
one pixel attribute of said input image; and

10   selectively combining said segments of said
partitioned units to provide a segmented version
of said input image.

2.   A method according to Claim 1, wherein said step

15   of selectively combining is effected by a shortest
spanning tree technique.

3.   A method according to Claim 2, wherein said step
of selectively combining includes the steps of:

20   representing said segments for each of said
plurality of partitioned units as nodes of a tree
connected via links, each of said links having a
weight based on said at least one pixel attribute;
finding a least weight link;

25   combining two nodes connected by said least
weight link to form a merged node;
connecting said merged node to nodes adjacent
said two nodes via new weighted links;
repeating said steps of finding, combining

30   and connecting until a predetermined number of

nodes representing said segmented version of said input image remain in said tree.

4.   A method according to Claim 3, wherein said step of partitioning further includes:

generating   connectivity   information associated with said partitioned units.

5.   A method according to Claim 4, wherein said nodes of said tree are connected using said connectivity information.

6.   A method according to Claim 1, wherein said partitioned units includes square blocks.

7.   A method according to Claim 1, wherein said step of determining segments is effected by a shortest spanning tree technique.

8.   A system for image segmentation comprising:

an image partition module;

a block segmentation module coupled to said image partition module; and

a segment combination module coupled to said block segmentation module;

wherein in use said image partition module partitions at least part of an input image into a plurality of partitioned units, said block segmentation module determines segments for each of said plurality of partitioned units based on at

least one pixel attribute of said input image and said segment combination module selectively combines said segments of said partitioned units to provide a segmented version of said input

5   image.

9.   A system according to Claim 8, further comprising:

a feature extraction module coupled to said block segmentation module;

10   wherein in use said feature extraction module determines said at least one pixel attribute of said input image.

10.   A system according to Claim 8, wherein said

15   partitioned units includes square blocks.

11.   A system according to Claim 8, wherein said block segmentation module determines segments by a shortest spanning tree technique.

20

12.   A system according to Claim 8, wherein said segment combination module selectively combines said segments by a shortest spanning tree technique.

25   13.   A system according to Claim 8, wherein said segment combination module selectively combines said segments by performing the steps of:

representing said segments for each of said plurality of partitioned units as nodes of a tree

connected via links, each of said links having a weight based on said at least one pixel attribute;

finding a least weight link;

combining two nodes connected by said least weight link to form a merged node;

connecting said merged node to nodes adjacent said two nodes via new weighted links;

repeating said steps of finding, combining and connecting until a predetermined number of nodes representing said segmented version of said input image remain in said tree.

14. A system according to Claim 8, wherein said image partition units further generates connectivity information associated with said partitioned units.

15. A system according to Claim 14, wherein said nodes of said tree are connected using said connectivity information.